

**Environmental Integrity Project  
1303 San Antonio, Suite 200  
Austin, Texas 78701  
Phone: (512) 637-9477  
Fax: (512) 584-8019  
www.environmentalintegrity.org**

July 13, 2009

Ms. LaDonna Castañuela  
Chief Clerk, MC-105  
Texas Commission on Environmental Quality  
P.O. Box 13087  
Austin, TX 78711-3087  
Fax: (512) 239-3311

*Via Hand-Delivery*

CHIEF CLERKS OFFICE

2009 JUL 13 PM 4:06

TEXAS  
COMMISSION  
ON ENVIRONMENTAL  
QUALITY

Re: TCEQ Docket No. 2007-1820-AIR; SOAH Docket No. 582-08-0861; *Application of NRG Texas Power LLC for State Air Quality Permit 79188 and Prevention of Significant Deterioration Air Quality Permit PSD-TX-1072*

and

TCEQ Docket No. 2007-1210-AIR; SOAH Docket No. 582-08-4013; *Application of NRG Texas Power LLC for Hazardous Air Pollutant Major Source [FCAA § 112(g)] Permit HAP-14*

Dear Ms. Castañuela:

Enclosed for filing in the above-referenced cause, please find Protestant Sierra Club's Exceptions to the Proposal for Decision.

Thank you for your attention to this matter. Please call me at (512) 637-9477 should you have any questions.

Sincerely,

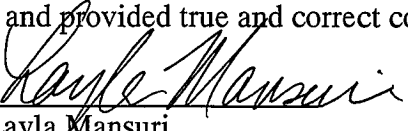
  
Layla Mansuri

Enclosure

cc: SOAH Docketing Clerk (via facsimile)  
Service List (via electronic mail)

## CERTIFICATE OF SERVICE

I hereby certify that I have served a true and correct original and seven (7) copies of Sierra Club's Exceptions to the Proposal for Decision on this 13<sup>th</sup> day of July, 2009 to the Chief Clerk of the Texas Commission on Environmental Quality and provided true and correct copies to the service list below.

  
Layla Mansuri  
Attorney for Sierra Club

CHIEF CLERKS OFFICE

2009 JUL 13 PM 4:06

TEXAS  
COMMISSION  
ON ENVIRONMENTAL  
QUALITY

### State Office of Administrative Hearings

*Via email*

Administrative Law Judge Bennett  
Administrative Law Judge Broyles  
State office of Administrative Hearings  
300 West 15<sup>th</sup> Street  
Austin, TX 78701  
PH: (512) 475-4993  
FAX: (512) 475-4994  
Craig.bennett@soah.state.tx.us  
Tommy.broyles@soah.state.tx.us

### For the Applicant

*Via email*

Derek R. McDonald  
Whitney Swift  
Baker Botts, L.L.P.  
1500 San Jacinto Center  
98 San Jacinto Blvd.  
Austin, Texas 78701-4039  
PH: (512) 322 - 2667  
FAX: (512) 322 - 8342  
derek.mcdonald@bakerbotts.com  
whitney.swift@bakerbotts.com

### For the Executive Director

*Via email*

Booker Harrison  
TCEQ  
Environmental Law Division, MC - 173  
P. O. Box 13087  
Austin, Texas 78711-3087  
PH: 512-239-4113  
FAX: 512-239-0606  
booharri@tceq.state.tx.us

### For the Public Interest Counsel

*Via email*

Garret Arthur  
TCEQ  
Office of Public Interest Counsel, MC - 175  
P. O. Box 13087  
Austin, Texas 78711-3087  
PH: 512-239-5757  
FAX: 512-239-6377  
garthur@tceq.state.tx.us

### For Robertson County: Our Land, Our Lives

*Via email*

Wendi Hammond  
7325 August Circle  
Plano, Texas 75025

PH: (972) 746 - 8540  
FAX: (469) 241 - 0430  
wendi@TexasEnvironmentalLaw.net

**For Citizens for Environmental Clean-Up**

*Via email*

Charles E. Morgan  
Route 2, Box 92A  
Buffalo, Texas 75831  
Phone (903) 389-5616  
Cemorgan75831@yahoo.com

**For Valence Operating Company**

*Via email*

Thomas Weber  
Paul Tough  
McElroy, Sullivan, & Miller, L.L.P.  
P.O. Box 12127  
Austin, Texas 78711  
Phone: (512) 327-8111  
Fax: (512) 327-6566  
tweber@msmtx.com  
ptough@msmtx.com

**For Douglas W. Ray**

*Via email*

James Blackburn, Jr.  
Charles Irvine  
Blackburn & Carter, P.C.  
4709 Austin Street  
Houston, Texas 77004  
Phone: (713) 524-1012  
Fax: (713) 524-5165  
jbb@blackburncarter.com  
Charles@blackburncarter.com

**CONSOLIDATED SOAH DOCKET NO. 582-08-0861**

**TCEQ DOCKET NOS. 2007-1820-AIR AND 2008-1210-AIR**

**APPLICATION OF NRG TEXAS POWER § BEFORE THE STATE OFFICE**  
**LLC FOR STATE AIR QUALITY §**  
**PERMIT 79188 AND PREVENTION OF § OF**  
**SIGNIFICANT DETERIORATION AIR §**  
**QUALITY PERMIT PSD-TX-1072 AND §**  
**FOR HAZARDOUS AIR POLLUTANT §**  
**MAJOR SOURCE PERMIT NO. HAP-14 § ADMINISTRATIVE HEARINGS**

TEXAS  
COMMISSION  
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QUALITY  
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CHIEF CLERK OFFICE

**PROTESTANT SIERRA CLUB'S EXCEPTIONS TO THE PROPOSAL FOR DECISION**

TO THE HONORABLE CHAIRMAN GARCIA AND COMMISSIONERS SHAW AND SOWARD:

COMES NOW, Sierra Club (Protestant) and pursuant to the rules of the Commission presents these exceptions and proposed revisions to the proposal for decision (PFD) and proposed order's findings of fact and conclusions on law submitted by Administrative Law Judges (ALJ) Bennett and Broyles.

**I. INTRODUCTION**

The ALJs' proposal for decision and order recommends that the TCEQ either: (1) deny, (2) remand, or (3) issue with modifications the Draft Permits that are the subject of this proceeding. However, as explained below, while some of the deficiencies found by the ALJs can be cured through altering certain permit conditions, like additional permit terms to ensure enforceability and additional monitoring, other errors can only be remedied by remanding the permit to the Executive Director. Therefore, Sierra Club urges the Commissioners to either recommend denial or remand the applications and Draft Permits.

Because the Applicant, NRG, bears the burden of proof on *all* applicable statutory and regulatory matters, the proposed findings of fact and conclusions of law address many issues on which Sierra Club either did not present evidence or provide legal argument. See, 30 Tex. Admin. Code §§ 55.210(b) and 80.17(a). Thus, Sierra Club's exceptions are limited in scope.

## **II. SIERRA CLUB'S EXCEPTIONS TO THE PFD**

### **Completeness of the Case-by-Case MACT Application**

Sierra Club agrees with the ALJs' recommendation that the MACT application be denied or remanded, because the application fails to identify the mercury control technologies and related information. A complete Case-by-Case MACT Application has yet to be reviewed by the Executive Director, SOAH or Protestants. Sierra Club takes exception to the ALJs' statement that this determination could be seen as an elevation of form over substance. It is axiomatic that NRG did not and could not meet its burden of proving that it will meet the MACT mercury emission limits if it failed to identify *how* it will achieve these emissions levels. Protestants should not be left to guess at the control technologies in order to assess the adequacy of an application. Further, in the event NRG has now decided on a particular mercury control strategy, Protestants should be afforded an adequate opportunity to examine NRG's proposal and present evidence on the issue. But this important component of the MACT determination is part and parcel of the preconstruction permitting process, including access to public participation, and may not be later stripped out and treated as a separate preconstruction authorization.

Sierra Club reminds the ALJs and the Commission that the requirement for a Clean Air Act Section 112 MACT determination is a *preconstruction* permit requirement.<sup>1</sup> Therefore, NRG may not commence construction on Limestone Unit 3 until it has received its final preconstruction air permit. While two draft permits are now pending before the Commission, Texas rules make clear that there is only one preconstruction air permit, which must include all applicable preconstruction requirements.<sup>2</sup>

**Demonstrations Under 30 Tex. Admin. Code §116.111: Protection of the Public Health and Welfare.**

Sierra Club offers the following revision of FOF 47 which more accurately describes the facts of this particular proceeding.

Proposed FOF 47: The air dispersion modeling demonstration performed by NRG, which evaluates predicted air quality impacts at and beyond the Limestone Station property line is proper.

Sierra Club Revision to FOF 47: It was not necessary for NRG to conduct additional air dispersion modeling in order to evaluate air quality impacts of Valence employees or contractors present on the Limestone Station property.

Alternatively, Sierra Club suggests that this FOF should be stricken, is unnecessary and written in a broad fashion with implications beyond the scope of this proceeding and inappropriate as a finding of fact.

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<sup>1</sup> “No major emitting facility ... may be constructed unless...the owner or operator... demonstrates... that emissions ... will not cause or contribute to air pollution... in excess of *any* applicable emission standard or standard of performance under this chapter.” CAA § 165(a)(3)(C), 42 USC § 7475(a)(3)(C) (emphasis added).

<sup>2</sup> “Consistent with the requirements of 40 Code of Federal Regulations §63.43 (concerning maximum achievable control technology determinations for constructed and reconstructed major sources), the owner or operator of a proposed affected source...shall submit a permit application as described in §116.110 of this title (relating to Applicability).” 30 Tex. Admin. Code § 116.404.

### **NRG's Air Dispersion Modeling**

Sierra Club excepts to the ALJs' conclusions regarding the facts presented by Sierra Club related to air dispersion modeling. Sierra Club raised several issues relating to the air dispersion modeling in this proceeding and the ALJs provide an analysis of the three main issues, beginning at page 64 of the PFD: (1) whether the existing Limestone units 1 and 2 cause an unmitigated exceedance of the short-term PSD increment for particulate matter, and whether modeling predicts that Limestone Unit 3 contributes to an exceedance of this standard ; (2) whether the modeling properly accounts for road and fugitive emissions; and (3) whether NRG's modeling is based on reliable weather data.

With respect to the short-term PM<sub>10</sub> PSD increment, the issue boils down to policy – found nowhere in statute or rules – that 5 µg/m<sup>3</sup> is an appropriate “significant impact level,” or “SIL,” below which a source is said to not contribute to a modeled violation of the standard. Applicant's expert, Dr. Pakrasi, testified that this SIL is found in regulation, but when pressed on the issue, he backed away from that assertion and relied on the Draft NSR Manual's SILs for NAAQS instead.<sup>3</sup> Sierra Club's expert, Ms. Sears, admitted candidly that use of a SIL of 5 µg/m<sup>3</sup> for the short-term PM<sub>10</sub> PSD increment is the *policy* of both TCEQ and EPA. Sierra Club's cross-examination of both the ED's and Applicant's witnesses attempted to point out the unreasonableness of that policy. The ALJs concluded that the policy is reasonable and applicable to this proceeding, and Sierra Club excepts to this conclusion.

The second issue – whether the modeling properly accounts for road and fugitive emissions – is particularly troublesome given 30 Tex. Admin Code §116.160(d) which requires approval from the EPA Administrator whenever TCEQ departs from EPA's air quality modeling

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<sup>3</sup> Tr. Vol.2, at 273:6-23.

procedures. For example, although “concerned” by TCEQ’s choice to continue to utilize the so-called 0.6 fugitive adjustment factor, that has not been approved by EPA, the ALJs rely upon TCEQ’s past practices and interpret EPA’s lack of objections in the particular proceeding (even though Sierra Club Exhibit 36 demonstrates that EPA has instructed TCEQ in the past that the 0.6 adjustment factor is not permissible in PSD reviews) as acceptance of this practice. Sierra Club excepts to the conclusions of the ALJs with regard to both road and fugitive emissions.

**Sierra Club proposes the following FOF:**

- TCEQ’s policies regarding the use of a 0.6 adjustment factor for low-level PM emissions, and exclusion of road emissions to model short-term PM impacts, were not subject to a notice and comment rulemaking or approved by the EPA Administrator.

With respect to the question of whether NRG’s modeling relies on adequate meteorological data, the ALJs express concern. The ALJs’ recommendation and analysis – which goes from page 80 to page 84 – contains analyses of the technical issues. Sierra Club excepts to these conclusions.

In addition, Sierra Club contends that the ALJs’ characterization of Ms. Sears’ expert testimony as contradictory and lacking technical justification is unsupported by the record.<sup>4</sup>

Moreover, neither the ED nor the Applicant objected to or attacked Ms. Sears’ qualifications as

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<sup>4</sup> Of the three modeling experts, only Ms. Sears is a qualified atmospheric scientist and meteorologist. Dr. Pakrasi holds degrees in chemical and environmental engineering and Mr. Opiela holds degrees in mechanical engineering. In addition, Sierra Club takes exception to the ALJs’ comparison of Dr. Pakrasi’s and Ms. Sears’ experience. It is true that Ms. Sears resides and does a lot of work in California, but that does not change the fact that she has been employed by an air regulatory agency, worked for many industrial clients, as well as environmental groups and plaintiffs. On the other hand, Dr. Pakrasi testified that in his 16 years he has only worked for industrial clients. Ms. Sears has also testified in federal court cases, and has firmly established her qualifications as an expert air modeler. The fact that she has done so much work in California is of no moment. The same can be said for Dr. Pakrasi’s work in several states, because the EPA-approved regulatory models, and expertise in air dispersion modeling, is not affected by how many states one has worked in.

an expert. Instead, the Applicant undertook several additional rounds of modeling responsive to the critiques made by Ms. Sears, and that modeling was never reviewed by TCEQ staff.

The lengthy discussion in the PFD related to the issues raised by Sierra Club and the testimony presented by Ms. Sears suggests that the ALJs found Ms. Sears' technical bases for her conclusions to indeed have merit. While ultimately the ALJs found the testimony of the Applicant and the Executive Director more persuasive, it seems incongruent to then dismiss the facts presented by Ms. Sears based on her credibility.

In determining that Ms. Sears' testimony was lacking in credibility compared to the other experts, the ALJs cite as an example Ms. Sears' critique of TCEQ's use of the 0.6 fugitive adjustment factor.<sup>5</sup> This characterization of Ms. Sears' testimony with regard to the 0.6 adjustment factor is incomplete and inaccurate. First, the cited testimony is in answer to the question of why TCEQ allows the adjustment factor for the previous regulatory model, ISC, but not for the current AERMOD model. Her answer is, "I don't know," and she follows with her opinion that there is "no basis, evaluation, or evidence to support this arbitrary procedure." The next question asks why TCEQ applies the adjustment factor to short-term, but not annual, fugitive emissions. Her complete answer is:

"Here again, there is no technical basis for singling out low-level fugitive PM<sub>10</sub> emissions for applying the 0.6 adjustment factor. Mr. Ruggeri developed his low-level fugitive PM<sub>10</sub> adjustment factor based on the differences between three-minute to 60-minute average dispersion coefficients. If this adjustment factor were truly necessary, it would apply to all modeled sources, not just low-level fugitive PM<sub>10</sub> emissions. It appears that TCEQ is trying to suppress the valid concern that elevated PM<sub>10</sub> air concentrations will result from low-level fugitive dust emissions. Anyone walking along a dirt road as a truck passes knows this to be true."

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<sup>5</sup> PFD at 81.

Ms. Sears' direct testimony, on pages 19 and 20, contained her explanation of the inadequacy of the technical merits of the Ruggeri memo. She also provided additional critique of the technical merits of the Ruggeri memo on page 25 of her direct testimony. Thus, it is not accurate to characterize her one statement – a simple attempt to boil down the technical justification in the Ruggeri memo – as a contradiction.

The ALJs rely on Dr. Pakrasi's (an expert who has only worked for industry) testimony that in his 16 years, he has never used any meteorological data other than airport data for a PSD application. Sierra Club agrees that applicants almost always choose to rely on airport data because it is always to their benefit. But, just because applicants always do it does not detract from the technical critiques offered by Ms. Sears. The bottom line, with respect to the use of the airport data, as with the issues of fugitive and road emissions and "SILs," appears to be that the ALJs, while acknowledging, and even expressing concern based on, the technical merits of the issues raised by Ms. Sears, is that ultimately the ALJs come down on the side of longstanding agency *practices and policies*.

For these reasons, Sierra Club respectfully urges the ALJs and the Commission to amend the PFD by deleting the unnecessary three paragraphs on pages 81 and 82.<sup>6</sup>

In addition, Sierra Club suggests the following revisions to the proposed FOF will present a more accurate reflection of the record.

- **Proposed FOF 49:** NRG performed the modeling using EPA models Industrial Source Complex Short-Term Model Version 3 (ISCST3) and ISCST3 Prime. These models were recommended by both the TCEQ and the EPA for modeling complex industrial sources like the Limestone Station.

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<sup>6</sup> These three paragraphs are:

The first full paragraph on page 81, beginning with the words, "Whereas the briefing...;"

The second full paragraph on page 81, beginning with the words "Ms. Sears' testimony...;" and

The first paragraph on page 82, beginning with the words, "On the other hand,..."

**Sierra Club Revision to FOF 49:** NRG performed the modeling using EPA models Industrial Source Complex Short-Term Model Version 3 (ISCST3) and ISCST3 Prime. At the time that the application was submitted, these models were recommended by both the TCEQ and the EPA for modeling complex industrial sources like the Limestone Station.

Sierra Club excepts to FOF 49 because it was established as a factual matter the models used to support the NRG application are no longer the models approved by EPA for an application such as the PSD application in this proceeding. **Sierra Club re-urges its proposed findings of fact:**

- NRG conducted air dispersion modeling for its Application, using the Industrial Source Complex Short-Term Model, Version 3 and ISCST3 Prime ("ISC"). As part of its Application, NRG submitted a modeling report in November 2006, knowing that in a November 9, 2005, Federal Register notice EPA stated that one year hence AERMOD should be used as a replacement for ISC. Tr. 244:2 (Pakrasi).
- NRG chose to use ISC instead of AERMOD in support of its Application because the use of ISC was easier and more convenient for NRG. Tr. 256:2 – 257:21 (Pakrasi).

At a minimum, FOF 49 should be modified to accurately reflect that the models utilized by NRG are no longer accepted by EPA for the type of application reviewed in this record.

- Proposed FOF 50: The modeling that was included in the State Air Quality/PSD Application was performed in accordance with applicable air quality rules and guidance, and in accord with the modeling protocol cooperatively developed for this project by NRG and TCEQ's air dispersion modeling team.

**Sierra Club Revision to FOF 50:** The modeling that was included in the State Air Quality/PSD Application was performed in accordance with applicable TCEQ air quality rules and the Executive Director's guidance, and in accord with the modeling protocol cooperatively developed for this project by NRG and TCEQ's air dispersion modeling team.

Sierra Club also excepts to FOF 50 because it does not accurately reflect the record, nor the discussion in the PFD. Thus, the finding of fact should be clear that it is limited to non-SIP approved rules and state-only guidance. Moreover, the clarification that the modeling was done in accordance with TCEQ rules and guidance is consistent with other findings of fact. See, for example, FOF 54 and 55 discussing road dust emissions.

- **Proposed FOF 96:** Both EPA and TCEQ accept demonstration of compliance with the PM<sub>10</sub> NAAQS as a surrogate for compliance with the PM<sub>2.5</sub> NAAQS.

This finding of fact is inaccurate with regard to EPA. It could be simply modified to read as follows:

**Sierra Club Revised FOF 96:** ~~Both EPA and TCEQ~~ accepts demonstration of compliance with the PM<sub>10</sub> NAAQS as a surrogate for compliance with the PM<sub>2.5</sub> NAAQS.

Sierra Club suggests that merely removing EPA from the FOF language will simplify the discussion. If EPA's position is to be included in findings of fact regarding PM<sub>2.5</sub>, a complete re-write is necessary.<sup>7</sup> Thus, FOF 96 is not accurate. Additionally, Sierra Club excepts to the conclusion that the source will not cause or contribute to a violation of the PM<sub>2.5</sub> NAAQS and the failure to either review or establish a BACT emissions limitation for PM<sub>2.5</sub> in the Permit.

Sierra Club further excepts to FOF 98 because it is inaccurate and implies that some kind of PM<sub>2.5</sub> analysis was undertaken beyond application of the surrogacy policy.

- **Proposed FOF 98:** The Limestone Station's emissions, including the Limestone Unit project, of PM<sub>2.5</sub>, will not cause or contribute to an exceedance of the PM<sub>2.5</sub> NAAQS.

**Sierra Club's Revised FOF 98:** ~~The Limestone Station's emissions, including the Limestone Unit 3 project emissions, of PM<sub>2.5</sub>, were evaluated under the surrogate policy. The determination that these emissions will not cause or contribute to an exceedance of the PM<sub>2.5</sub> NAAQS is based solely on the finding of fact that the project emissions will not cause or contribute to a violation of the PM<sub>10</sub> NAAQS.~~

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<sup>7</sup> On June 1, 2009 EPA Administrator Lisa Jackson issued a stay of 40 CFR § 52.21(i)(1)(xi) in order to reconsider the adequacy of relying on PM<sub>10</sub> "Surrogacy Policy" for PM<sub>2.5</sub> analyses, indicating that reliance on the policy is no longer appropriate. 74 Fed. Reg. 26098 (June 1, 2009). The Federal Register refers to a April 24, 2009 letter from Administrator Jackson to Paul Cort that further discusses that status of the Surrogate Policy. Sierra Club is happy to provide all parties with a copy of this letter upon request.

In addition, on April 27, 2009, EPA Region 9 filed a motion requesting the EAB voluntarily remand the permit issued to Desert Rock Energy Company, in order for EPA to reconsider, among other issues, its reliance on this grandfathering provision to support issuing a permit based on a showing that the proposed facility's emissions would not cause or contribute to a violation of the PM<sub>10</sub> NAAQS, with no corresponding analysis with respect to the PM<sub>2.5</sub> NAAQS. Even with the surrogacy policy in place, EPA committed to assessing the validity of that policy on a case-by-case basis. EPA's position is not to simply accept the surrogate with no analysis.

- **Proposed FOF 109:** Emissions from the Limestone Unit 3 project will not cause or measurably contribute to an exceedance of any NAAQS.

**Sierra Club Revised FOF 109:** Emissions from the Limestone Unit 3 project will not cause or ~~measurably~~ contribute to an exceedance of any NAAQS.

The term “measurably” should be stricken from FOF 109. It is not discussed in the text of the PFD, nor does it have a basis in the text of the statutes.

### **ESL Analysis (ESLs for Limestone Dust, Coal Dust, Ammonia and Vanadium)**

While Sierra Club takes no position on the adequacy of the application or draft permits with regard to ESLs, Sierra Club offers one exception to FOF 145 – 217. This revision is intended to more accurately reflect the record in this proceeding.

- **Proposed FOF 217:** No adverse public health or welfare effects will result from the Limestone Station and Limestone Unit 3 project’s emission of air contaminants for which no air quality standard exists.

**Sierra Club Proposed Revision to FOF 217:** Based on the application and review pursuant to current ESLs, no adverse public health or welfare effects are expected to ~~will~~ result from the Limestone Station and Limestone Unit 3 project’s emission of air contaminants for which no air quality standard exists.

### **Additional Findings Concerning Air Emissions: Chapter 111 Standards**

Proposed findings of fact 218-220 should be clarified to reflect the facts presented in the record rather than future unknown actions by NRG. Sierra Club refers the Commission and the ALJs to FOF 267-269, which accurately describe findings of fact regarding whether or not NRG can comply with the regulations without making statements about future compliance.

- **Proposed FOF 218:** Limestone Unit 3 project stationary will not exceed the opacity limit of 20 percent over a six-minute period established in 30 Tex. Admin. Code § 111.111(a)(1)(B).

**Sierra Club Revised FOF 218:** Based on application representations and in accordance with the permit terms, it is expected that the Limestone Unit 3 project stationary will not

exceed the opacity limit of 20 percent over a six-minute period established in 30 Tex. Admin. Code § 111.111(a)(1)(B).

- **Proposed FOF 219:** Limestone Unit 3 project fugitive emission sources will not exceed the opacity limit of 30 percent over a six-minute period established in 30 Tex. Admin. Code § 111.111(a)(7).

**Sierra Club Revised FOF 219:** Based on application representations and in accordance with the permit terms, it is expected that the Limestone Unit 3 project fugitive emission sources will not exceed the opacity limit of 30 percent over a six-minute period established in 30 Tex. Admin. Code § 111.111(a)(7).

- **Proposed FOF 220:** Limestone Unit 3 project will comply with limits on the emission rate of particular matter from the auxiliary boiler, engine, and material handling stacks, established under 30 Tex. Admin. Code §111.151.

**Sierra Club Revised FOF 220:** Based on application representations and in accordance with the permit terms, it is expected that the Limestone Unit 3 project will comply with limits on the emission rate of particular matter from the auxiliary boiler, engine, and material handling stacks, established under 30 Tex. Admin. Code §111.151

### **Unregulated Substances**

While Sierra Club disagrees with the ALJs' decisions to exclude all testimony as not relevant which relates to greenhouse gasses or climate change, Sierra Club also excepts to the extent the FOFs and COLs do not accurately reflect the record.

Each of the findings of fact should reflect the most specific FOF appropriate for this contested case hearing and permit application. Sierra Club takes exception to the ALJs' proposed findings of fact regarding "Unregulated Substances," numbered 224 through 227, and urges the Commission to refrain from any findings of fact related to carbon dioxide. Protestants and Applicant attempted, unsuccessfully, to include evidence related to greenhouse gas emissions and carbon dioxide, and all such evidence, from both Applicant and Protestants was stricken. Consequently, no evidence or testimony regarding CO<sub>2</sub> was admitted or developed as part of this proceeding. To the extent that findings of fact regarding CO<sub>2</sub> are included in the

Proposed Order, Sierra Club asserts that there are really only three facts established in this proceeding, with respect to greenhouse gases, and **Sierra Club proposes these Revised FOFs:**

- The proposed NRG Limestone Unit 3 will emit carbon dioxide, a known greenhouse gas (“GHG”).
- On the basis of relevance, the ALJs excluded all evidence, from Applicant and Protestants related to carbon dioxide and greenhouse gases.
- The application and draft permit do not consider GHGs.

Sierra Club finds no evidence in the record for ALJs’ proposed Finding of Fact No. 226 (*Neither EPA nor TCEQ has ever issued an air permit with emission limitations for CO<sub>2</sub>*). FOF 226 is inappropriate and should be omitted because no testimony was admitted into the record. The remaining findings of fact in this section are more appropriately conclusions of law, with which Sierra Club disagrees. ALJs’ proposed Finding of Fact No s. 224 (*CO<sub>2</sub> is not currently subject to regulation under the Federal CAA and has not previously been subject to regulation*), 225 (*CO<sub>2</sub> is not currently subject to regulation under the Texas CAA and has not previously been subject to regulation*), and 227 (*NRG Limestone Unit 3 will emit some substances that are not presently regulated under FCAA or TCAA*) are more appropriately conclusions of law – in line with the ALJs’ proposed conclusions of law Nos. 24 and 25 – with which Sierra Club respectfully disagrees.

The Supreme Court, decision in *Massachusetts v. EPA*, 549 U.S. 497 (2007), puts to rest any notion that greenhouse gases, including CO<sub>2</sub>, are not regulated under the federal Clean Air Act (“CAA”).

While those favoring regulatory inaction would argue that because the *Mass. v EPA* decision resulted from a petition for rulemaking under section 202(a) of the Clean Air Act, which

deals with emission standards for new motor vehicles, this argument neglects the Supreme Court's reasoning.

Importantly, the Supreme Court looked beyond the mobile sources' subchapter – Title II – of the CAA to answer the question before it. In fact, the Court relied on the definitions in the Clean Air Act's General Provisions, found in Title III of the Act. These definitions apply to the *entire* CAA, and not simply mobile sources:

“Because EPA believes that Congress did not intend it to regulate substances that contribute to climate change, the agency maintains that carbon dioxide is not an “air pollutant” within the meaning of the provision.

“The statutory text forecloses EPA’s reading. The Clean Air Act’s sweeping definition of “air pollutant” includes “any air pollution agent or combination of such agents, including any physical, chemical . . . substance or matter which is emitted into or otherwise enters the ambient air . . .” §7602(g) (emphasis added). On its face, the definition embraces all airborne compounds of whatever stripe, and underscores that intent through the repeated use of the word “any.” Carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons are without a doubt “physical [and] chemical . . . substance[s] which [are] emitted into . . . the ambient air.” The statute is unambiguous.”

*Id* at 528 (Footnotes omitted, emphasis added).

Turning back to the narrower question of whether the CAA grants authority to regulate greenhouse gas emissions from mobile sources, the Court held:

“While the Congresses that drafted §202(a)(1) might not have appreciated the possibility that burning fossil fuels could lead to global warming, they did understand that without regulatory flexibility, changing circumstances and scientific developments would soon render the Clean Air Act obsolete. The broad language of §202(a)(1) reflects an intentional effort to confer the flexibility necessary to forestall such obsolescence. *See Pennsylvania Dept. of Corrections v. Yeskey*, 524 U. S. 206, 212 (1998) (“[T]he fact that a statute can be applied in situations not expressly anticipated by Congress does not demonstrate ambiguity. It demonstrates breadth” (internal quotation marks omitted)). Because greenhouse gases fit well within the Clean Air Act’s capacious definition of “air pollutant,” we hold that EPA has the statutory authority to regulate the emission of such gases from new motor vehicles.”

*Id* at 532 (Emphasis added).

Further, if greenhouse gas emissions from mobile sources are “air pollutants” within the meaning of the Act, then greenhouse gas emissions from power plants must certainly be air pollutants, too. Any argument to the contrary has no basis in fact or law. Transportation sources are the second largest greenhouse gas emitting sector in the U.S., *after* electricity generation. 74 Fed. Reg. 18888 (second column) (April 24, 2009). The electric power industry (i.e. power plants) is the single largest greenhouse gas emitting sector, responsible for 34 percent of U.S. global warming emissions. *Id* at 18905 (third column). Thus, any argument that the Supreme Court’s decision in *Mass. v. EPA*, extends to cars but not to power plants, is somewhat tortured.

The term “air pollution” is also used throughout Title I of the CAA, which deals with numerous programs and activities under the Act, including preconstruction permitting for new and modified sources such as Limestone Unit 3. The findings and declaration of purpose for the CAA, contained in Title I, state:

The Congress finds ...

(2) that the growth in the amount and complexity of **air pollution** brought about by urbanization, industrial development, and the increasing use of motor vehicles, has resulted in mounting dangers to the public health and welfare, including injury to agricultural crops and livestock, damage to and the deterioration of property, and hazards to air and ground transportation;

(3) that **air pollution** prevention (that is, the reduction or elimination, through any measures, of the amount of pollutants produced or created at the source) and air pollution control at its source is the primary responsibility of States and local governments...

CAA Sec. 101(a); 42 USC §7401(a)

In addition, the Congressional declaration of purpose for Part C of Title I (the Prevention of Significant Deterioration, or “PSD” program – which anchors the preconstruction authorizations for the Limestone plant, but by no means contains all of the applicable requirements) states:

The purposes of this part are as follows:

- (1) to protect public health and welfare from any actual or potential adverse effect which in the Administrator's judgment may reasonably be anticipated to occur from **air pollution** or from exposures to pollutants in other media, which pollutants originate as emissions to the ambient air), notwithstanding attainment and maintenance of all national ambient air quality standards...
- (5) to assure that any decision to permit increased **air pollution** in any area to which this section applies is made only after careful evaluation of all the consequences of such a decision and after adequate procedural opportunities for informed public participation in the decision-making process.

CAA Sec. 160; 42 U.S.C. § 7470.

Thus, the U.S. Supreme Court has spoken clearly and unequivocally: greenhouse gases are air pollutants covered by the Clean Air Act.

Permitting agencies and courts in several states have either denied permits outright on CO<sub>2</sub>/climate change grounds, or have at least accepted their legal responsibilities to consider climate impacts and weigh alternatives. As a matter of federal law and policy, the argument of whether CO<sub>2</sub> pollution must be considered is over. Last year, the U.S. Environmental Protection Agency's Environmental Appeals Board ("EAB") rejected each of the excuses offered by EPA permit writers for failing to include CO<sub>2</sub> emission limits in a permit for the construction of a new coal-fired power plant proposed in Utah, sending the permit back for a thorough and reasoned review and justification. *In re Deseret Power Electric Coop.*, PSD Appeal No. 07-03, Slip Op. (EAB Nov. 13, 2008).

[W]e conclude that the Region's rationale for not imposing a CO<sub>2</sub> BACT limit in the Permit – that it lacked authority to do so because of an historical Agency interpretation of the phrase 'subject to regulation under the Act' as meaning 'subject to a statutory or regulatory provision that requires actual control of emissions of that pollutant' – is not supported by the administrative record.

Slip op. at 63.

Subsequently, on February 18, 2009, the EAB, relying on its *Deseret* decision, remanded a Northern Michigan University preconstruction air permit to the Michigan DEQ, in order that the state agency analyze whether CO<sub>2</sub> emissions should be limited under a best available control technology analysis. *In re Northern Michigan University Ripley Heating Plant*, PSD Appeal No. 08-02, Slip Op. (EAB February 18, 2009).

On April 17, 2009, EPA Administrator Lisa Jackson made an initial finding that GHGs cause or contribute to air pollution that will reasonably be expected to endanger public health or welfare. EPA's "endangerment finding" is that current and projected concentrations of the mix of six key greenhouse gases – CO<sub>2</sub>, methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>) – in the atmosphere threaten the public health and welfare of current and future generations. 74 Fed. Reg. 18886 (April 24, 2009).

**Measurement of Emissions: 30 Tex. Admin. Code § 116.111(a)(2)(B)**

The ALJs find in the text of the PFD that it would be appropriate to require the use of continuous emissions monitoring systems ("CEMs") to monitor compliance with the filterable PM limits for the reasons discussed on pages 50-52 of Sierra Club's closing brief. Sierra Club notes that, despite the ALJs recommendation on page 115 of the PFD, there are no findings of fact related to PM CEMS. Sierra Club urges the Commission to insert, at page 29 of the ALJs' Proposed Order (Findings of Fact regarding Measurement of Emissions), the findings of fact numbered 27 through 30, found at page 4 of *Sierra Club and Douglas Ray's Joint Proposed Findings of Fact and Conclusions of Law*.

**Sierra Club urges the following findings of fact, based on the ALJs'**

**recommendation:**

- Particulate matter continuous emissions monitoring systems (CEMS) would be the best way to monitor particulate matter directly. Tr. at 971: 20 – 23.
- The Executive Director would not be opposed to including continuous emissions monitoring for PM in the Permits. Tr. at 973, ln. 18-21.
- PM CEMS measure the pollutant of interest and provide a greater degree of confidence that the PM control device is operating as intended than periodic performance testing. PM CEMS for filterable particulate matter have been adequately demonstrated in industries ranging from pulp and paper, hazardous waste incineration, copper smelting, and no less than six electric generating units. The capital and operating costs of PM CEMS are comparable to those of Continuous Opacity Monitoring Systems (COMS). App. Ex. 73 (Deposition of Jim Linville), at deposition Exhibit 8, p. 2 (Comments of U.S. EPA on the Application of NRG Texas LLC for LMS 3 permit)
- Direct, continuous measurement of particulate matter, as can be provided only by PM CEMS, will help ensure proper monitoring of the PM control equipment to the source, environmental agency, and to the public. App. Ex. 73 (Deposition of Jim Linville) at Deposition Exhibit 8, p. 2 (Comments of U.S. EPA).

In addition, Sierra Club urges the Commission to **revise findings of fact No. 228 as**

**follows:**

- NRG will install, operate, and maintain continuous emissions monitoring systems (CEMS) to provide a continuous demonstration of compliance with limits of NO<sub>x</sub>, CO, SO<sub>2</sub>, mercury, NH<sub>3</sub>, and filterable PM from the Limestone Unit 3 project boiler stack.

**Best Available Control Technology (BACT): 30 Tex. Admin. Code § 116.111(a)(2)(C)**

As a threshold matter, Sierra Club finds it necessary to remind the ALJs and the Commission that the requirement to satisfy BACT under 30 Tex. Admin. Code § 116.111(a)(2)(C) does not incorporate the SIP-approved definition of BACT that must be applied in all PSD permitting actions. That applicable definition of BACT is:

"an emissions limitation \*\*\* based on the maximum degree of reduction for each pollutant subject to regulation under [the Clean Air Act] which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 C.F.R. Parts 60 and 61. \*\*\*." 40 C.F.R. § 52.21(b)(12).

The PSD program in Texas identifies the definition of Best Available Control Technology (BACT). See 40 C.F.R. § 52.2270. Texas's adoption of this BACT definition was crucial to EPA's approval of the State's PSD program. 54 Fed. Reg. 52,823, 52,825 (Dec. 22, 1989). Without any explanation, TCEQ deleted this incorporation of the federal BACT definition from its regulations in the Texas Administrative Code in 2006. 31 Tex. Reg. 538 (Jan. 27, 2006). EPA has never approved this SIP revision. Therefore, according to 42 U.S.C. § 7416 (Retention of State Authority), 40 C.F.R. § 52.21(b)(12) is the definition of BACT that Texas must apply in implementing the State's PSD permitting program. See 40 C.F.R. § 51.105; *General Motors v. U.S.*, 496 U.S. 530, 540 (1990). In fact, when the EPA approved other 1998 Texas Administrative Code revisions into the Texas SIP, it specifically withheld approval of this definition of BACT. 67 Fed. Reg. 58,697, 58,700 (Sept. 18, 2002).

In addition, Sierra Club disagrees with the ALJs conclusion that a proper Tier 1 review was conducted under the Executive Director's draft guidance document, RG-383.<sup>8</sup> Sierra Club

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<sup>8</sup> Sierra Club is concerned about the ALJs dismissive attitude regarding the BACT holdings by the Environmental Appeals Board. The Environmental Appeals Board is the hearing body within EPA that decides PSD permit appeals. See 40 C.F.R. § 124.19, App. O. Composed of independent and experienced environmental attorneys, see 40 C.F.R. § 1.25(e), it provides expert interpretation of Clean Air Act rules and regulations and issues published, precedential, opinions. Courts accord significant deference to its views. See, e.g., *United States v. Southern Indiana Gas & Electric Co.*, 245 F. Supp. 2d 994, 1009 (S.D. Ind. 2003) (finding the Board's "interpretation [of a Clean Air Act concept] . . . reasonable and persuasive" and "defer[ing] to it in this litigation"). Because the Board has often provided the most thorough available discussion of Clean Air Act law, including many regulations which Texas has

urges the ALJs to both reconsider its conclusion that while in several instances the emission limits proposed by NRG and supported by the Executive director as BACT are in fact not BACT, that the analysis used to arrive at those numbers was not flawed, nor the application incomplete. If the end result is in error, it follows that there are inadequacies in the process to arrive at those conclusions.

For example, with regard to the BACT analysis for NO<sub>x</sub>, although the ALJs conclude that Sierra Club's concerns are legitimate; they do not indicate that NRG failed to satisfy the requirements of a BACT analysis for NO<sub>x</sub>. Yet, the ALJs critique NRG's NO<sub>x</sub> case, stating that "NRG's evidence is very slim and does little to explain the technical difficulties associated with maintaining a 90% reduction in the SCR over longer periods."<sup>9</sup> And while the ALJs are apparently not persuaded with NRG's explanations that SCR cannot deliver the kind of results Sierra Club holds out, they nevertheless find the evidence supports the higher long term emission rates proposed.

As the ALJs evaluate the short term emission rate proposed for NO<sub>x</sub>, they again find problems with NRG's analysis. The ALJs find that there are permits with a range of lower short term emission rates (from .05 to .069 lb/MMBtu) and NRG has failed to adequately explain and justify the higher short term rate of .07 lb/MMBtu. With no clear analysis, the ALJs find .06 lb/MMBtu to represent BACT for NO<sub>x</sub>, apparently because it is in the range of other permits and is therefore consistent with other recent permits.

An agency must choose the lowest limit "achievable." While a state agency may reject a lower limit based on data showing the project does not have "the ability to achieve [the limit]

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adopted or incorporated wholesale into its own law, Sierra cites Board opinions when they may assist the ALJs in addressing issues in this case.

<sup>9</sup> PFD page 36.

consistently,” *In re Newmont*, 2005 EPA App. LEXIS 29 at \*30-31, it may only do so based on a detailed record establishing an adequate rationale. *See Id.* Sierra Club requests clarification as to how the ALJs and the Commission determine what BACT rate is achievable. Is it enough to just look at recently permitted limits for the individual pollutants, or is there a requirement to evaluate the capabilities of new technological developments (even developments for existing equipment)? The Executive Director’s review and the ALJs conclusions suggest that previously permitted limits are dispositive.

With regard to the decision on BACT for SO<sub>2</sub>, the ALJs’ conclusion seems to rest on the idea that Protestants were unable to point to “any facility that had a 99% control efficiency continuously for a two-year period...at most only able to point to a period of 7 months.” (PFD at 32). This is an inappropriate shifting of burdens that requires the Protestant to undertake the technical and economic feasibility analysis at the heart of a BACT review. The ALJs state:

Although the evidence shows that higher control efficiencies have been obtained over short periods of time, the evidence does not establish that they have been achievable continuously over extended periods of time. There will be fluctuations in emissions and it is not appropriate to set the BACT limit at essentially the highest control level recorded with no margin of fluctuation or error over time. There is no evidence of similar facilities meeting the 99% control efficiency on a permanent basis, and NRG’s proposed control efficiency of between 95% and 98.4% (depending on fuel) represents realistically achievable limits over a continuous long term. (PFD p. 32-33).

Yet, the record does not include a detailed technical explanation for why a higher control efficiency cannot be achieved consistently. The ALJs rely on assertions of the Applicant’s experts that they simply cannot – without providing a detailed record of why not – and that no one else has done it. Sierra Club has similar concerns through the entirety of the PFD and that the policy being applied seems to be that an Applicant need only match the rates established in

other permits. This does not comply with the plain language of the statute, rule or even Tier 1 of draft RG-383.

Sierra Club is concerned by the lack of findings of fact in the ALJs' proposed order. There is only one finding of fact relating to the BACT analysis for NO<sub>x</sub> (FOF 249) and one for CO (FOF 248). Moreover, there are no additional findings which support the conclusion that 0.05/0.07 lb/MMBtu NO<sub>x</sub> represents BACT. There are more FOFs and COLs for greenhouse gasses than for the BACT analysis on NO<sub>x</sub> and CO; this is troublesome given that the BACT analysis lies at the heart of the PSD permit application and there was no evidence admitted on greenhouse gases.

Sierra Club respectfully request that the ALJs provide additional findings of fact to more completely reflect the record. For ease of reference Sierra Club provides some of its proposed findings as set out in, *Sierra Club and Douglas Ray's Joint Proposed Findings of Fact and Conclusions of Law*.<sup>10</sup> These findings more accurately and completely reflect the record. In the event that the ALJs or the Commission adopt or revise the findings of fact to be consistent with Sierra Club's arguments, please see the above document for the related conclusions of law.

**Sierra Club urges the following FOFs:**

*Regarding the BACT Analysis, Itself*

- Best Available Control Technology is technology forcing. Tr. at 378:11-13.
- Limestone Unit 3 will not employ best available control technology. Sierra Club Ex. 15 at 21:1-6.
- NRG applied its BACT analysis to the criteria set out in the Executive Director's RG-383 draft guidance document.

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<sup>10</sup> For a complete set of Sierra Club's proposed findings of fact and conclusions of law, please see *Sierra Club and Douglas Ray's Joint Proposed Findings of Fact and Conclusions of Law*, FOF 34-139 and COL 15-33.

- NRG conducted its BACT analysis pursuant to 30 Tex. Admin. Code § 116.10(3). App. Ex. 49 at 7 (Frazier Direct).
- NRG did not apply to its BACT analysis the criteria set out in EPA's draft Workshop Manual.
- BACT requires a review of the most current technology that is technically and economically feasible. This cannot be accomplished by restricting a review to what has already been permitted. Tr. 730-731.
- Tier 1 of the Executive Director's draft guidance document requires evaluation of new technical developments. Applicant's Ex. 31 at 3.
- The Limestone 3 project was what TCEQ refers to as a Tier 1 BACT determination. Sierra Club Ex. 15, at p. 24: 23-26 (Sahu Direct) and App. Ex. 49, at p. 12:12-15 (Frazier Direct).
- In Tier I, emission reduction performance levels accepted as BACT in recent permit reviews for the same process and/or industry continue to be acceptable – if no new technical developments have been made that indicate additional reductions are economically or technically reasonable. App. Ex. 31.
- Applicant's Tier 1 BACT analysis did not include an evaluation of new technological developments. Sierra Club Ex. 15, at p. 25: 24-27 (Sahu Direct).
- The Executive Director did not provide any evidence or documentation in the administrative record of its review of new technological developments. Tr. at 905 – 906. (Cross examination of Jim Linville).
- The basis of the Executive Director's BACT review is that the limits proposed are consistent with BACT determinations from other recently permitted PC boilers. Sierra Club Ex. 15, at p. 30 and Exec. Director Ex. 9 (Preliminary Determination Summary)
- The BACT analysis omitted any consideration of this review of new technical developments. Sierra Club Ex. 15, at p. 30:16-17 (Sahu Direct).
- Since the time of the J.K. Spruce application, on which the NRG BACT analysis relies, there have been significant, demonstrated advancements in the performance of control technologies for coal power plants. While the suite of controls selected by Limestone 3 (i.e., low NOx burners and SCR for NOx, wet FGD for SO<sub>2</sub>, fabric filter for particulate matter, good combustion practices for CO and VOC, etc.), the design, operation, and resulting performance of these controls are different today than in 2003. Sierra Club Ex. 15, at p. 31:4-12 (Sahu Direct).
- NRG's expert who performed the BACT analysis for the main boiler relied on four sources of information, the EPA RACT, BACT, LAER Clearinghouse (RBLC), EPA's

National Coal-fired Utility Projects Spreadsheet, a review of permits and draft permits for other plants, and the TCEQ Guidance RG-383. App. Ex. 49, at p. 6-7 (Frazier Direct).

- The RBLC, EPA's National Coal-fired Utility Projects Spreadsheet and draft permits for other plants are backward-looking sources of performance data. Sierra Club Ex. 15, at p. 32:14-20 (Sahu Direct).
- The RBLC, EPA's National Coal-fired Utility Projects Spreadsheet and draft permits for other plants are also incomplete repositories of performance data. Sierra Club Ex. 15, at p. 32:14-20 (Sahu Direct).
- NRG's BACT determination relies on the fact that there have been numerous prior Texas permit applications for power plants – namely the J. K. Spruce Unit 2 application in 2005 as well as various applications prepared by TXU for several plants that have since been withdrawn. These applications are not considered “recent” for purposes for BACT. Sierra Club Ex. 15, at pp. 27-28 (Sahu Direct).
- Sources of information, in addition to that relied upon by NRG, should have been reviewed and documented for the BACT analysis and to support the proposed emission rates.
- Sources of information regarding BACT that were not included in the application include: (i) actual emissions performance data from EPA's acid rain database, for NOx and SO2 emissions; (ii) The Department of Energy (DoE) Clean Coal Technology program and its various studies, reports, and results; (iii) The Coal Utilization Research Council (CURC)/Electric Power Research Institute (EPRI); (iv) The Institute of Clean Air Companies, including all of the major vendors for air pollution controls; (v) Commercial libraries such as the McIlvaine Company collection; (vi) Technical Papers at various meetings such as the Power-Gen and Coal-Gen conferences, as well as similar conferences in Europe, Asia, and elsewhere – typically, vendors and suppliers present technical papers as well as pre-conference seminars discussing advances in technologies at these annual conferences; (vii) Trade journals such as Power Engineering; (ix) discussions with vendors and/or other consultants; (viii) discussions with other state regulators; (x) source test results from power plants including possibly from Limestone Units 1 and 2. Sierra Club Ex. 15, at pp. 33-34.
- When lower emission rates than the rates proposed in a PSD permit are known to be technically feasible at similar sources, the law mandates for each such rate (in this case for NOx, SO2, PM, CO, Sulfuric Acid Mist (SAM) and Lead (Pb)) that an analysis demonstrate why the rate is either not technically or economically feasible. Applicant's. Ex. 31 at Appendix C-1.
- New technical developments may offer greater performance levels resulting in greater emission reductions than those accepted in recent permit reviews. App. Ex. 31 at p. 3.

- The design efficiency of pollution control equipment reflects whether or not the control device will operate at its best performance. Tr. At 656:11-24.
- The Executive Director's response to EPA's Comments related to this application is not reasonably supported by substantial evidence.
- The Executive Director's response to Sierra Club's comments related to the application is not reasonably supported by substantial evidence.

#### NOx BACT

- The NOx rates proposed by the applicant – 0.07 lb/MMBtu (30-day rolling average, excluding startup and shutdown) and 0.05 lb/MMBtu (annual average) – are not BACT.
- NRG failed to present evidence regarding the economic or technical feasibility of lower NOx rates. (Campbell Tr. 1222:4 to 1222:11 and Ex. 8 to Applicant's Ex.73 (EPA comments))
- EPA informs NRG and the Executive Director that a lower short term NOx limits are technically feasible and that an analysis must be provided to justify why a lower limit is not being proposed for Limestone Unit 3. App. Ex. 73, Exhibit 8, at Comment 2.
- Applicant's BACT analysis for NOx is incomplete.
- There is no record evidence of an analysis of the technical or economic feasibility of emission rates lower than that proposed by NRG.
- NRG does not directly discuss what level of NOx it anticipates out of the boiler and, consequently, at the inlet to the SCR. Again, the technology for the low NOx burners and over-fire air are unspecified as are the design details including control efficiency for the SCR. Sierra Club Ex. 15, at p. 42:15-18 (Sahu Direct).
- Without an understanding of the type of low-NOx burners or over-fire air strategy or the types and amounts of SCR catalyst to be used, it is impossible to determine the performance of the NOx reduction system. Sierra Club Ex. 15, at p. 42:20-22 (Sahu Direct).
- NRG proposes NOx emissions will be 0.20 lb/MMBtu at the boiler outlet with the use of low NOx burners and overfired air.
- The currently proposed boiler should achieve a much lower emission rate of NOx at the boiler outlet.
- NRG's over-estimation of the emissions at the boiler outlet provide a cushion in its ultimate emission limits.

- Much lower boiler outlet NOx levels, as low as 0.1 lb/MMBtu, have been achieved and maintained on a continuous basis for numerous sources burning Powder River Basin coals and using only combustion controls. Sierra Club Ex. 15, at p. 43-44 (Sahu Direct) and Sierra Club Exs. 26, 27, 28, 29, 30 and 31.
- NRG's proposal of NOx emissions of 0.20 lb/MMBtu at the boiler with the use of low NOx burners and overfired air is not credible.
- The EPA Acid Rain database data includes many older subcritical units operating at lower boiler outlet NOx levels with the combustion controls proposed by NRG, including Scherer Units 3 and 4 in Georgia, Labadie Units 1-4 in Missouri, and Rush Island Units 1-2 in Missouri.
- Data demonstrates that much lower boiler outlet NOx levels have been continuously achieved in practice, using the combustion controls proposed by NRG. Sierra Club Ex. 15, at p. 45-46 and Table B (Sahu Direct).
- Emissions of NOx at the boiler outlet, when employing over-fired air and low-NOx burners should be below 0.15 lb/MMBtu.
- NRG fails to provide, in the Application, any details regarding the design of this SCR other than that it will use ammonia as the reducing reagent. There is no information about the catalyst material and no information on catalyst quantities, number and size of catalyst layers, the configuration of the catalyst reactors in relation to the gas flow path, and the presence of trapping and cleaning devices such as screens, soot blowers, or sonic horns. There is also no detail provided regarding how the ammonia injection grid will be configured, how many injectors will be located, and where the injectors will be located. There is no discussion of catalyst management planning over time. The application does not reflect any discussions with SCR or catalyst vendors.
- There is no record evidence to support NRG's implicit 75% or even 67% NOx removal value for the SCR.
- A 75% removal efficiency for the SCR is not BACT.
- Modern SCRs routinely achieve NOx removal efficiencies greater than 90%
- NRG fails to provide any information regarding new information regarding technological developments from SCR operations and catalyst vendors that was available to NRG and its consultants in 2006, when the application was prepared and submitted. Likewise the Executive Director failed to document any new technical information as required by the Tier 1 BACT analysis.
- In 2005, more than 30 units have achieved greater than 90% NOx reduction using SCR.

- In 2004, 90% NOx removal was achieved on 10,000 MW of coal-fired power generation.
- Many coal-fired units have been guaranteed to achieve greater than 90% NOx reduction and are achieving greater than 90% reduction.
- All of the catalyst vendors and SCR designers have developed technologies to accommodate these characteristics of PRB coals in SCR designs since 2000 or earlier. Pluggage by ash is mitigated by positioning the reactors in relation to the gas path vertically in a manner that allows for ash to fall into hoppers. Screens can also be used to minimize ash pluggage. Sierra Club Ex. 15, at p. 48-49 (Sahu Direct).
- SCR's are designed with additional catalyst capacity, based on coal characteristics in order to achieve necessary reactor life, prior to regeneration or change-out. Sierra Club Ex. 15, at p. 48-49 (Sahu Direct).
- There is no technical reason NRG cannot obtain a minimum of 90% removal guarantee for NOx at the SCR. Sierra Club Ex. 15, at p. 48-49 (Sahu Direct).
- The pollution control devices proposed by NRG for NOx can achieve lower emissions than the 0.05 lb/MMBtu NOx annual average proposed by NRG.
- Texas law requires that the BACT analysis include the technology for the low NOx burners and over-fire air are unspecified as are the design details including control efficiency for the SCR.
- The proposed NOx removal efficiency is 75% (i.e., 0.20 down to 0.05 lb/MMBtu).
- NOx BACT that is appropriate for the Limestone Unit 3 is 0.02 lb/MMBtu, excluding periods of startup, shutdown, maintenance and malfunction. Sierra Club Ex. 15 at p. 49:23-24 (Sahu Direct).

#### Carbon Monoxide (CO) BACT

- The proposed emission limits in the draft permit for CO are not BACT.
- Applicant's BACT analysis for CO is incomplete.
- There is no record evidence of an analysis of the technical or economic feasibility of emission rates lower than that proposed by NRG.
- "Good combustion practices" are the proposed pollution control for carbon monoxide.
- New low NOx burners can achieve low NOx as well as low carbon monoxide values. Sierra Club Ex. 15, at pp. 61-63 and Sierra Club Ex. 34 and 35 (Sahu Direct).

- Lower emission limits than those proposed by the Applicant for carbon monoxide are technically feasible and have been permitted at other similar sources. Sierra Club Ex. 15 at p. 63:27-30 and 64:1-3 (Sahu Direct).
- NRG's application provides examples of lower CO emission rates than those in the draft permit and proposed by the application. Yet fails to further explain why such rates are not achievable for LMS 3, or compare these rates to the draft permit's proposed rate. See App. Ex. 7 p. NRG 000124 (*Unit 3 Installation, NRG Texas LP – Limestone Electric Generating Station, Tables Supporting BACT*, Table A-6), for examples of at least 2 other units, permitted more than 15 years ago with lower CO emission rates.

In addition, Sierra Club excepts to findings of fact 234 and 235 to the extent that each imply the TCEQ has a formal SIP-approved guidance document on BACT. The guidance document relied on in this proceeding and referenced in findings of fact 234 and 235 is actually a draft guidance document prepared by the Executive Director and has never been finalized, has not been subject to notice and comment, nor approved by EPA into the SIP with regard to the Texas PSD program.

Sierra Club also excepts to finding of fact 237 because it inaccurately implies evidence that is not in the record.

- **Proposed FOF 237:** In addition to looking at the permits for these other facilities, NRG considered information from vendors and engineering experts on the most realistic emission limits available with BACT.

**Sierra Club Revised FOF 237:** In addition to looking at the permit for these other facilities, NRG *states that it* considered information from vendors and engineering experts on the most realistic emission limits available with BACT, but did not present any of vendor information as evidence to the record or to the Executive Director.

### III. CONCLUSION

In conclusion, Sierra Club respectfully requests that the Commission adopt the PFD and Order with the modifications provided herein. Further, based on the deficiency in the MACT

determination, with respect to the Applicant's clear failure to identify the control technology for mercury, as well as the numerous deficiencies in the BACT analysis, detailed above, the Commission should either remand or deny the applications that are the subject of this proceeding.

Respectfully Submitted,

**ENVIRONMENTAL INTEGRITY PROJECT**

By: 

Ilan Levin  
Texas Bar No. 00798328  
Layla Mansuri  
Texas Bar No. 24040394  
Christina Mann  
Texas Bar No. 24041388

1303 San Antonio Street, Suite 300  
Austin, Texas 78701  
Phone: 512-637-9477  
Fax: 512-584-8019

ATTORNEYS FOR PROTESTANT  
SIERRA CLUB